Volume 18: 395–424
Publication date: 30 September 2015
dx.doi.org/10.7751/telopea9147

TELOPEA
Journal of Plant Systematics

The Royal Botanic Gardens & Domain Trust

plantnet.rbgsyd.nsw.gov.au/Telopea • escholarship.usyd.edu.au/journals/index.php/TEL • ISSN 0312-9764 (Print) • ISSN 2200-4025 (Online)

Lectotypification of Indian taxa of *Leucas* (Lamiaceae)

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Abstract

Seventeen species and five varieties of Indian *Leucas* R. Br. are lectotypified here: *Leucas angustissima* Sedgw., *L. ciliata* Benth., *L. clarkei* Hook.f., *L. decemdentata* (Willd.) Sm. var. *angustifolia* (Wall. *ex* Benth.) V.Singh, *L. eriostoma* Hook.f. var. *lanata* Hook.f., *L. helicterifolia* Haines, *L. hyssopifolia* Benth., *L. lamiifolia* Desf., *L. lanata* Benth., *L. lanceaefolia* Desf., *L. longifolia* Benth., *L. montana* (B. Heyne *ex* Roth) Spreng., *L. prostrata* (Hook.f.) Gamble, *L. pubescens* Benth., *L. rosmarinifolia* Benth., *L. stelligera* Wall. *ex* Benth., *L. stricta* Benth., *L. suffruticosa* Benth., *L. vestita* Benth. var. *angustifolia* Hook.f., *L. vestita* Benth. var. *oblongifolia* Hook.f., *L. vestita* Benth. var. *sericostoma* Hook.f. and *L. wightiana* Wall. *ex* Benth.

Introduction

The genus *Leucas* R. Br. consists of more than one hundred species worldwide, especially in warm and tropical regions of Africa, Asia and some extending to Australia and America (Singh 2001; Mabberley 2008). Presently, forty species and eleven varieties are found in India, with 22 species and nine varieties endemic to different states (Singh 2001). The distribution pattern of the species of *Leucas* in India revealed that out of 51 taxa, 45 taxa are found in South India, which represent about 88% percent of the total 51 species (Singh 2001). Furthermore, out of the 31 endemic taxa of *Leucas*, 24 (about 77%) are strictly restricted to South India (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu). The level of endemism suggests the South India is one of the centres of diversity of *Leucas*. During systematic studies of genus *Leucas* for India, I realized that it was necessary to lectotypify 17 species and five varieties because no specific herbarium sheet was cited as holotype in protologue of these taxa and also not lectotypified earlier. While designating lectotypes, I followed the guidelines of Art. 9.2 of the Melbourne Code (McNeill *et al.* 2012).

Lectotypifications

1. ***Leucas angustissima*** Sedgw., *Journal of Indian Botany* 2: 123 (1921)

Type citation: "In patentibus saxis, prope Gairsoppa Falls in Canara in provincia Bombaiensi, ad alt. circa 1500 ped. angl. et pluv. circa 100 digit. angl., Sedg. et Bell 7234, Nov. 1919; et apud Siddhapur in eadem regione Sedg. et Bell 7255, eodem mense: cotypi in Herb. Coll. Sanct. Xavieri, Bombay. Invenit qucque in Herb. Talbot, 3740, a Siddhapur."

Lectotype (here designated): India, Karnataka state, North Kanara [Uttar Kannada], Jog Falls (now in Shivamogga district), 1400 ft., Nov 1919, *Sedgwick & Bell 7234* (CAL20542!); isolectotype: BLAT! **Fig. 1**

Fig. 1. Lectotype of *Leucas angustissima* (CAL0000020542, © Central National Herbarium, Howrah).

Fig. 2. Lectotype of *Leucas ciliata* (K001114984, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Residual syntypes: India, Karnataka state, Uttar Kannada district, Siddhapur [Siddapur], Nov 1919, *Sedgwick & Bell 7255* (BLAT!); Siddhapur, Feb 1896, *Talbot 3740* (BSI!)

Distribution: India, endemic and rare (Karnataka, restricted to Shivamogga and Uttar Kannada district).

Notes: Sedgwick (1921) described *Leucas angustissima* based on collections of *Sedgwick & Bell 7234*, *Sedgwick & Bell 7255* and *Talbot 3740*, but no specific herbarium sheet was designated as the holotype. Four herbarium specimens related to these three gatherings were extant now and all are examined and annotated by Sedgwick as '*Leucas angustissima* Sedg.', two at BLAT and one each at BSI and CAL. The herbarium specimen CAL20542 is better preserved and more complete in having root, stem, leaves and flowers than the other three specimens, and hence is chosen here as the lectotype as it agrees well with the protologue.

2. ***Leucas ciliata*** Benth., *Plantae Asiaticae Rariores (Wallich)* 1: 61 (1830)

Type citation: "Wall. Cat. Herb. Ind. n. 2046", "*Phlomis ciliata*, Herb. Heyne.", "Hab. Napalia."

Lectotype (here designated): Without locality, 26 Dec 1816, Herb. Heyne, *Wallich cat. n. 2046* [1] (K1114984!) **Fig. 2**

Residual syntypes: Nipaul [Nepal], Chandanghiry [Chandragiri], 1 Feb 1821, *Wallich cat. n. 2046* [2] (K1114985!); Nepal, *anno* 1821, *Wallich cat. n. 2046* [2] (CAL! and K929544!); Napalia [Nepal], *anno* 1829, *Wallich cat. n. 2046* [2] (K929543! and K929546!); Nepal, without date, *Wallich cat. n. 2046* [2] (E301298!)

Distribution: Bhutan, China, India (Andhra Pradesh, Arunachal Pradesh, Daman, Diu, Goa, Gujarat, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Nagaland, Rajasthan, Sikkim, Tamil Nadu, Telangana and Uttarakhand), Laos, Myanmar, Nepal, Thailand and Vietnam.

Notes: Bentham (1830) described *Leucas ciliata* based on the collections of *Wallich cat. n. 2046*, but no type was indicated nor did he mention the name of herbarium where the specimens were housed. From the Wallich catalogue it is clear that *Wallich cat. n. 2046* is *Leucas ciliata* of Bentham and this number is further divided into three subheadings – [1] Phlomis Herb. Heyne, [2] Napalia 1821 and [3] villosa Benth. Silhet. So, as per type citation given in protologue by Bentham, first and second subheadings belong to type collections and seven specimens were traced (CAL, E301298, K929543, K929544, K929546, K1114984 and K1114985) related to *Wallich cat. n. 2046* [1] and [2]. Only the five specimens at K have been considered here to choose the lectotype specimen for this name because Bentham worked at K. The best one, K1114984, is better preserved and more complete than the other four specimens. This specimen is annotated '*Phlomis ciliata*' (written by Heyne), as mentioned in protologue by Bentham, hence is here designated as the lectotype as it agrees well with the protologue. The specimen K929542 belong to *Wallich Cat. n. 2046* [3], collected from Sylhet, Bangladesh is not a part of type material.

3. ***Leucas clarkei*** Hook.f., *Flora of British India* 4: 688 (1885)

Type citation: "Behar; on Parusnath, alt. 1500 ft., *Clarke*."

Lectotype (here designated): India, Chota Nagpore [Chota Nagpur], Jharkhand state, Giridih district, Parasnath, 1500 ft., 19 Nov 1874, *Clarke 24913* (K929549!) **Fig. 3**

Residual syntype: India, Chota Nagpore [Chota Nagpur], Jharkhand state, Giridih district, Parasnath, 1500 ft., 19 Nov 1874, *Clarke 24904* (K929550!)

Distribution: India, endemic (Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Sikkim, Tamil Nadu and Uttar Pradesh).

Notes: J.D. Hooker (1885) described *Leucas clarkei* on the basis of specimens from Bihar, Parasnath (now this area comes in Giridih district of Jharkhand state) collected by C.B. Clarke, but no specific herbarium sheet was designated as the holotype. Pertaining to this specification, two sheets are extant at K (K929549 and K929550). Both the specimens at K were examined and annotated by J.D. Hooker as 'L. clarkei Hf'. From these the best one, K929549, is designated here as the lectotype as it agrees well with the protologue and also in having dissected flower parts pasted on the sheet.

Fig. 3. Lectotype of *Leucas clarkei* (K000929549, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Fig. 4. Lectotype of *Leucas decemdentata* var. *angustifolia* (K001115035, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Fig. 5. Lectotype of *Leucas eriostoma* var. *lanata* (K000929524, © the Board of Trustees of the Royal Botanic Gardens, Kew).

4. ***Leucas decemdentata*** (Willd.) Sm. var. ***angustifolia*** (Wall. *ex* Benth.) V.Singh, *Journal of Economic and Taxonomic Botany* 22(2): 388 (1998)

Leucas angustifolia Wall. *ex* Benth., *Plantae Asiaticae Rariores* 1: 62 (1830)

Type citation: "Wall. Cat. Herb. Ind. n. 2064.", "Hab. in Napalia."

Lectotype (here designated): Napalia [Nepal], Bechiaco, 10 Dec 1820, *Wallich cat. n. 2064* (K1115035!) **Fig. 4**

Residual syntypes: Napalia [Nepal], *anno* 1829, *Wallich cat. n. 2064* (K929503!); Napalia, without date, *Wallich cat. n. 2064* (CAL!)

Distribution: India (Uttar Pradesh), Myanmar and Nepal.

Notes: Bentham (1830) described *Leucas angustifolia* on the basis of specimens of *Wallich cat. n. 2064*, but no type was indicated nor did he mention the name of herbarium where the specimens were housed. Three specimens of *Wallich cat. n. 2064* are extant now, two at K (K929503 and K1115035) and one at CAL. Two specimens at K have been considered here to choose the lectotype specimen for this name. The best one, K1115035, is better preserved and is designated here as the lectotype as it agrees well with the protologue.

5. ***Leucas eriostoma*** Hook.f. var. ***lanata*** Hook.f., *Flora of British India* 4: 686 (1885)

Type citation: "Nilghiris and Bababoodan Hills.—L. lepistoma, *Herb. Wight.*"

Lectotype (here designated): India, Peninsula Indiae Orientalis [Peninsular India], without date, *Wight 2164* (K929524!) **Fig. 5**

Residual syntype: India, Karnataka, Chikmagalur district, Bavaboodan Hills [Bababudan Hills], without date, *Wight s.n.* (K929523!)

Distribution: India, endemic and rare (Karnataka and Tamil Nadu).

Notes: J.D. Hooker (1885) described *Leucas eriostoma* var. *lanata* on the basis of specimens collected by Wight from Bavaboodan Hills and Nilghiris, but no type was indicated nor did he mention the name of herbarium where the specimens were housed. Two herbarium specimens collected by Wight, with J.D. Hooker's annotation 'L. eriostoma Hf var. lanata Hf', are held at K (K929523 and K929524). Of these two, the best preserved specimen, K929524, is designated here as the lectotype as it agrees well with the protologue.

6. ***Leucas helicterifolia*** Haines, *Bulletin of Miscellaneous Information, Kew* 1922(6): 188 (1922)

Type citation: "India. Bihar & Orissa: Ramnagar Hills; 300–600 m., *Haines* 4995."

Lectotype (here designated): India, Bihar state, West Champaran district, Ramnagar, Someshwar Hills, Nov 1916, *Haines 4995* (K846347!); isolectotype: K846346! **Fig. 6**

Distribution: India, endemic and threatened (Bihar, restricted to West Champaran district).

Notes: Haines (1922) described *Leucas helicterifolia* based on the specimens collected from Ramnagar Hills, Bihar, but no specific herbarium sheet was designated as the holotype. Only two herbarium specimens of *Haines 4995* are now extant, K846346 and K846347. Of these two, the best one, K846347, is designated here as the lectotype as it agrees well with the protologue and also includes short descriptive notes and dissected calyx on the sheet by H.H. Haines.

7. ***Leucas hyssopifolia*** Benth., *Plantae Asiaticae Rariores* 1: 60 (1830)

Type citation: "Wall. Cat. Herb. Ind. n. 2044", "Hab. in Napalia, Kamaon."

Lectotype (here designated): India, Uttarakhand state, Kamaon [Kumaun], *anno* 1829, *Wallich cat. n. 2046* [2] (K929562!) **Fig. 7**

Residual syntypes: Nepal, without date, *Wallich cat. n. 2044* [1] (E301300! and E301301!); Napalia [Nepal], *anno* 1821, *Wallich cat. n. 2044* [1] (K929563!); Nepal, without date, *Wallich cat. n. 2044* [1] (K929565!); Napalia, Banipa [Banepa], May 1821, *Wallich cat. n. 2044* [1] (CAL! and K1114982!); India, Uttarakhand state, Kamaon [Kumaun], without date, *Wallich cat. n. 2044* [2] (CAL! and K1114981!); Napalia, without date, *Wallich cat. n. 2044* [1] (P738009!); Napalia, *anno* 1830, *Wallich cat. n. 2044* [1] (P738010!)

Distribution: India (Himachal Pradesh, Jammu and Kashmir, Jharkhand, Madhya Pradesh, Punjab, Sikkim, Uttarakhand, Uttar Pradesh and West Bengal), Myanmar, Nepal and Pakistan.

Fig. 6. Lectotype of *Leucas helicterifolia* (K000846347, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Fig. 7. Lectotype of *Leucas hyssopifolia* (K000929562, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Notes: Bentham (1830) described *Leucas hyssopifolia* based on the collections of *Wallich cat. n. 2044*, but no type was indicated nor did he mention the name of herbarium where the specimens were housed. *Wallich cat. n. 2046* [1] belong to collections from Nepal and *Wallich cat. n. 2046* [2] to Kumaon, Uttarakhand state, India. Pertaining to this specification, eleven specimens of *Wallich cat. n. 2046* were traced (CAL two specimens, E301300, E301301, K929562, K929563, K929565, K1114981, K1114982, P738009 and P738010). Of these, only five specimens at K have been considered as appropriate specimens from which to select a lectotype for this name because Bentham worked at K. The sheet K929562, is better preserved and has dissected flower parts pasted on the sheet, and agrees well with the protologue. Therefore, it is here designated as the lectotype.

8. ***Leucas lamiifolia*** Desf., *Mémoires du Muséum d'Histoire Naturelle, Paris* 11: 4 (1824)

Type citation: "Cette espèce est indigène des montagnes de Nelligerry; elle se plaît, dit M. Lechenault, dans les terrains fertiles."

Lectotype (here designated): India, montagnes de Nelligerry [Nilgiri Mountains], without date, *Leschenault 299* (P738018!); isolectotypes: P215011! and P738019! **Fig. 8**

Distribution: India, endemic (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu).

Notes: Desfontaines (1824) described *Leucas lamiifolia* based on the collections of M. Lechenault from Nilgiri Mountains, but no type was indicated nor did he mention the name of herbarium where the specimens were housed. Three herbarium sheets of Lechenault are extant at P (P215011, P738018 and P738019). The sheet P738018, is better preserved, has dissected flower parts pasted on the sheet, agrees well with the protologue, and so is designated here as the lectotype.

9. ***Leucas lanata*** Benth., *Plantae Asiaticae Rariores* 1: 61 (1830)

Type citation: "Wall. Cat. Herb. Ind. n. 2055.", "Hab. in Kamaon, Sirmore et in valle Dhoon dicta."

Lectotype (here designated): India, Uttarakhand state, Deyra Dhoon [Dehra Dun], *anno* 1829, *Wallich cat. n. 2055* [1] (K929484!) **Fig. 9**

Residual syntypes: India, Uttarakhand state, Deyra Dhoon [Dehra Dun], *anno* 1825, *Wallich cat. n. 2055* [1] (K1115013!); Himachal Pradesh state, Sirmore [Sirmaur], without date, *Wallich cat. n. 2055* [2] (K1115015!); Uttarakhand state, Kamaun [Kumaun], without date, *Wallich cat. n. 2055* [3] (K1115014!)

Distribution: China, India (Andhra Pradesh, Assam, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand and West Bengal), Pakistan, Myanmar, Nepal and Thailand.

Notes: Bentham (1830) described *Leucas lanata* based on the collections of *Wallich cat. n. 2055*, but no type was indicated nor did he mention the name of herbarium where the specimens were housed. *Wallich cat. n. 2055* [1] belong to collection from Deyra Dhoon [Dehra Dun], Uttarakhand state, *Wallich cat. n. 2055* [2] to collections from Sirmore [Sirmaur], Himachal Pradesh state by Lt. Gerard, and *Wall. Cat. n. 2055* [3] to Kamaun [Kumaun], Uttarakhand state. Pertaining to this specification, only four specimens of *Wallich cat. n. 2055* were now extant, K1115013–1115015 and K929484. Of these, the best one and better preserved sheet, K929484, is designated here as the lectotype as it agrees well with the protologue.

10. ***Leucas lanceaefolia*** Desf., *Mémoires du Muséum d'Histoire Naturelle, Paris* 11: 5 (1824)

Type citation: "M. Lechenault", "Cette espèce est indigène des montagnes de Nelligerry."

Lectotype (here designated): India, montagnes de Nelligerry [Nilgiri Mountains], without date, *Leschenault 77* (P215012!); isolectotype: P738020! **Fig. 10**

Distribution: India, endemic (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu).

Notes: Desfontaines (1824) described *Leucas lanceaefolia* based on a gathering by Leschenault from Nilgiri hills, India but no type was indicated nor did he mention the name of herbarium where the specimens were housed. Within the protologue, Desfontaines gave the precise locality and collector name but did not provide the number and date of collection. Two specimens from Nilgiri, India, *Leschenault 77*, are held at P (P215012 and P738020). The better preserved sheet with dissected flower pasted on the sheet, P215012, is chosen here as the lectotype because the illustration in the protologue is based on this specimen and it agrees well with the protologue.

Fig. 8. Lectotype of *Leucas lamiifolia* (P00738018, © Muséum National D'Histoire Naturelle, Paris).

Fig. 9. Lectotype of *Leucas lanata* (K000929484, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Fig. 10. Lectotype of *Leucas lanceaefolia* (P00215012, Muséum National D'Histoire Naturelle, Paris).

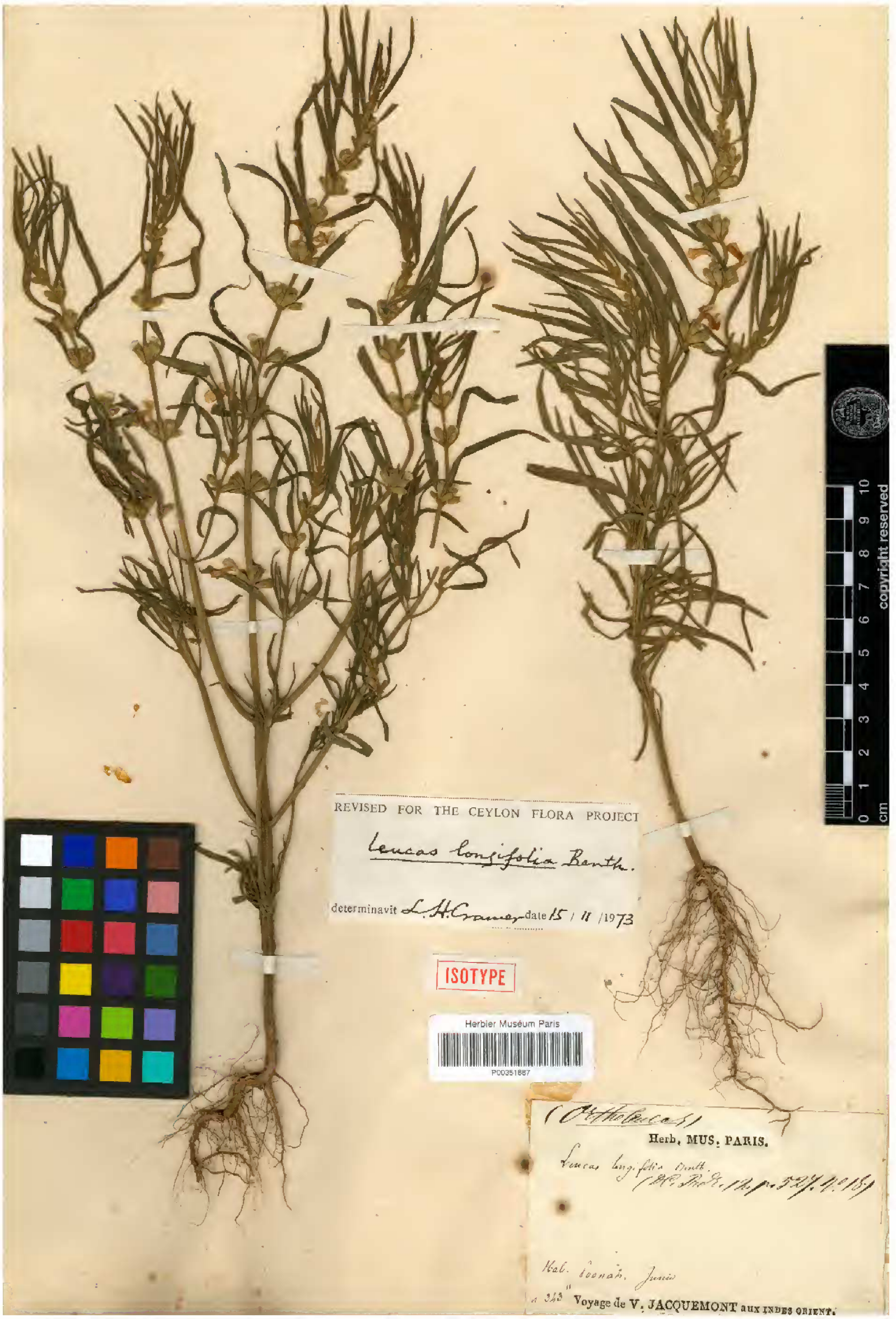

Fig. 11. Lectotype of *Leucas longifolia* (P00351887, Muséum National D'Histoire Naturelle, Paris).

11. ***Leucas longifolia*** Benth., *Labiatarum Genera et Species* 744 (1835)

Type citation: "Hab. in India Orientali septentrionali: ad vias circa Pounah *Jacquemont!* (*h. s. sp. e Mus. Par.*)"

Lectotype (here designated): India, Maharashtra state, Poonah [Pune], without date, *V. Jacquemont 343* (P351887!); isolectotypes: K929516! and P351886! **Fig. 11**

Distribution: India (Gujarat, Karnataka and Maharashtra) and Sri Lanka.

Notes: Bentham (1835) described *Leucas longifolia* on the basis of specimens collected by Jacquemont from Pune, Maharashtra state, India but no specific herbarium sheet was designated as the holotype. Bentham's main type herbarium is held at K but he also consulted the Jacquemont collections at P for *Labiatarum Genera et Species*. Three specimens collected by *Jacquemont* from Pune are held at K and P (K929516, P351886 and P351887). Of these, the best preserved specimen, P351887, is designated here as the lectotype as it agrees well with the protologue.

12. ***Leucas montana*** (B. Heyne *ex* Roth) Spreng., *Systema Vegetabilium* 742 (1825)

Phlomis montana B. Heyne *ex* Roth, *Novae Plantarum Species praesertim Indiae Orientalis* 263 (1821)

Type citation: "In India orientali observavit oculatissimus B. HEYNE."

Lectotype (here designated): India, without date, *B. Heyne s.n.* [*Wallich cat. n. 2056*] (K1115017!) **Fig. 12**

Residual syntypes: India, Andhra Pradesh state, Hydrabad [Hyderabad], 16 Aug 1798, *B. Heyne s.n.* (K929496!); without date, *B. Heyne s.n.* (K929497!); without date, *B. Heyne s.n.* [*Wallich cat. n. 2056*] (K929495!); without date, *B. Heyne s.n.* [*Wallich cat. n. 2056*] (CAL)

Distribution: India, endemic (Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu and West Bengal).

Notes: B. Heyne (1770–1819) collected many plant specimens from India and he distributed these specimens to different workers like Roth, Roxburgh and Wallich. Roth described many species based on the specimens of B. Heyne in his book *Novae Plantarum Species praesertim Indiae Orientalis*. The type specimens related to this book were kept at B and many were destroyed during World War II. *Phlomis montana* is also described by Roth (1821) on the basis of specimens collected by B. Heyne from India but no type was indicated nor did he mention the number and date of collection. Type specimens of *Phlomis montana* no longer exist at B. At present five specimens of *Phlomis montana* collected by B. Heyne, belonging to the same gathering from which some were handed over to Roth, are now extant, four at K (K929495–929497 and K1115017) and one at CAL. It is unclear if Roth examined the four specimens at K. From these five specimens, three specimens (CAL, K929495 and K1115017) belong to *Wallich cat. n. 2056*, dated 1829 (on sheet K929495) is given by Wallich not by B. Heyne. The original date of collection of these whole gathering of *Phlomis montana* is cited by B. Heyne (K929496) as 16 Aug 1798. Although, they are the part of original gathering and these five specimens are considered here as the original materials according to Art. 9.3(c) of Melbourne Code (McNeill *et al.* 2012). Of these, the best one and better preserved, K1115017, is designated here as the lectotype as it agrees well with the protologue.

13. ***Leucas prostrata*** (Hook.f.) Gamble, *Flora of the Presidency of Madras* 1154 (1924)

Leucas hirta (B. Heyne *ex* Roth) Spreng. var. *prostrata* Hook.f., *Flora of British India* 4: 687 (1885)

Type citation: "Anamallay and Nilghiri hills, alt. 6–8000 ft."

Lectotype (here designated): India, Mont. Nilghiri [Nilgiri Mountains] & Kurg [Kodagu], without date, *G. Thomson s.n.* (K929537!) **Fig. 13**

Residual syntypes: India, Nilghiries [Nilgiri] without date, *Schmidt s.n.* (K929536!); Neelghiries [Nilgiri] without date, *Wight s.n.* (K929535!)

Distribution: India, endemic (Karnataka, Kerala and Tamil Nadu).

Notes: J.D. Hooker (1924) described *Leucas hirta* var. *prostrata* formally on the basis of specimens collected from Anamallay and Nilghiri hills but did not specify a holotype. In the protologue, he cited the precise locality, but did not provide collector name, date, or collection number. In this case, three specimen sheets at K (K929535–929537) collected from Nilgiri and with J.D. Hooker's annotation 'L. hirta var. prostrata Hf' should be considered as original material. The best one and better preserved specimen, K929537, is designated here as the lectotype as it agrees well with the protologue and also this specimen belong to Hook.f. & Thomson herbarium.

Fig. 12. Lectotype of *Leucas montana* (K001115017, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Fig. 13. Lectotype of *Leucas prostrata* (K000929537, © the Board of Trustees of the Royal Botanic Gardens, Kew).

14. ***Leucas pubescens*** Benth., *Labiatarum Genera et Species* 610 (1834)

Type citation: "Hab. in Indiae orientalis Peninsula *Wight !* (*h. s. sp. e Mus. Angl. Ind.*)"

Lectotype (here designated): India, Peninsula Ind. Orientalis [Peninsular India], Tamil Nadu state, Negapatam [Nagapatnam], Madura [Madurai] hills, without date, *Wight 2156* (E301308!) **Fig. 14**

Residual syntypes: India, Peninsula Ind. Orientalis [Peninsular India], Tamil Nadu state, Madura [Madurai] hills, without date, *Wight 2156/23* (E301307!); Peninsula Ind. Orientalis, without date, *Wight 2156* (E301309!)

Distribution: India, endemic (Karnataka, Kerala and Tamil Nadu).

Notes: Bentham (1834) described *Leucas pubescens* on the basis of specimens collected by Wight from Peninsular India, but no holotype was indicated nor did he mention the number and date of collection. Bentham's main type herbarium is held at K, but no specimens of Wight were found there. Three specimens of *Wight 2156* collected from Peninsular India were extant now at E (E301307–301309) and they are the part of original gathering, thus these four specimens are considered here as the original materials. Of these, the best one and better preserved, E301308, is designated here as the lectotype as it agrees well with the protologue and also in having dissected flower parts pasted on top of the sheet.

15. ***Leucas rosmarinifolia*** Benth., *Plantae Asiaticae Rariores* 1: 61 (1830)

Type citation: "Hab. . . . . (Herb. Wight.)"

Lectotype (here designated): India, Peninsula Indiae Orientalis [Peninsular India], without date, *Wight 2158* (P738033!) **Fig. 15**

Residual syntype: India, without date, *Wight s.n.* [*Wallich Cat. n. 2521*] (K1116341!)

Distribution: India, endemic and rare (Karnataka, Kerala and Tamil Nadu)

Notes: Bentham (1830) described *Leucas rosmarinifolia* on the basis of specimens collected by Wight but no type was indicated. Within the protologue, Bentham gave only the name of collector, but did not provide locality, date, or collection number. Pertaining to this specification, only two specimens of Wight are now extant, K1116341 and P738033. Although Bentham's main types are held at K, he also consulted collections at P while working on Lamiaceae. Whether he examined both specimens is unclear, but both belong to the original gathering. Therefore, both are considered to be original material. Of these two specimens, the best one and better preserved specimen, P738033, is designated here as the lectotype as it agrees well with the protologue.

16. ***Leucas stelligera*** Wall. *ex* Benth., *Plantae Asiaticae Rariores* 1: 61 (1830)

Type citation: "Wall. Cat. Herb. Ind. n. 2049", "Hab. Aurungabad."

Lectotype (here designated): India, Maharashtra state, Aurangabad, March 1823, *Wallich cat. n. 2049* (K1114996!); isolectotype: CAL! **Fig. 16**

Residual syntypes: India, *anno* 1829, *Wallich cat. n. 2049* (K929520! and K929521!)

Distribution: India (Andhra Pradesh, Daman, Diu, Goa, Gujarat, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Tamil Nadu and West Bengal) and Sri Lanka.

Notes: Bentham (1830) described *Leucas stelligera* based on the specimens of Wallich *cat. n. 2049*, but no specific herbarium sheet was designated as the holotype. Pertaining to this specification, four specimens of *Wallich cat. n. 2049* were known (CAL, K929520, K929521 and K1114996). From the three specimens at K, the best one and better preserved, K1114996, is designated here as the lectotype as it agrees well with the protologue and also locality Aurungabad [Aurangabad] clearly written on this sheet as mentioned in protologue.

17. ***Leucas stricta*** Benth., *Plantae Asiaticae Rariores* 1: 61 (1830)

Type citation: "Wall. Cat. Herb. Ind. n. 2045", "*Phlomis stricta*, Herb. Heyne.", "Hab. . . . . (Herb. Heyne.)"

Lectotype (here designated): India, Tamil Nadu, Tiruvallur district, Pulicat hills, without date, *Wallich cat. n. 2045* (K1114983!) **Fig. 17**

Residual syntypes: India, *anno* 1829, *Wallich cat. n. 2045* (CAL! and K929547!)

Distribution: India (Andhra Pradesh, Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu and Uttar Pradesh) and Myanmar.

Fig. 14. Lectotype of *Leucas pubescens* (E00301308, © Royal Botanic Garden, Edinburgh).

Fig. 15. Lectotype of *Lucas rosmarinifolia* (P00738033, © Muséum National D'Histoire Naturelle, Paris).

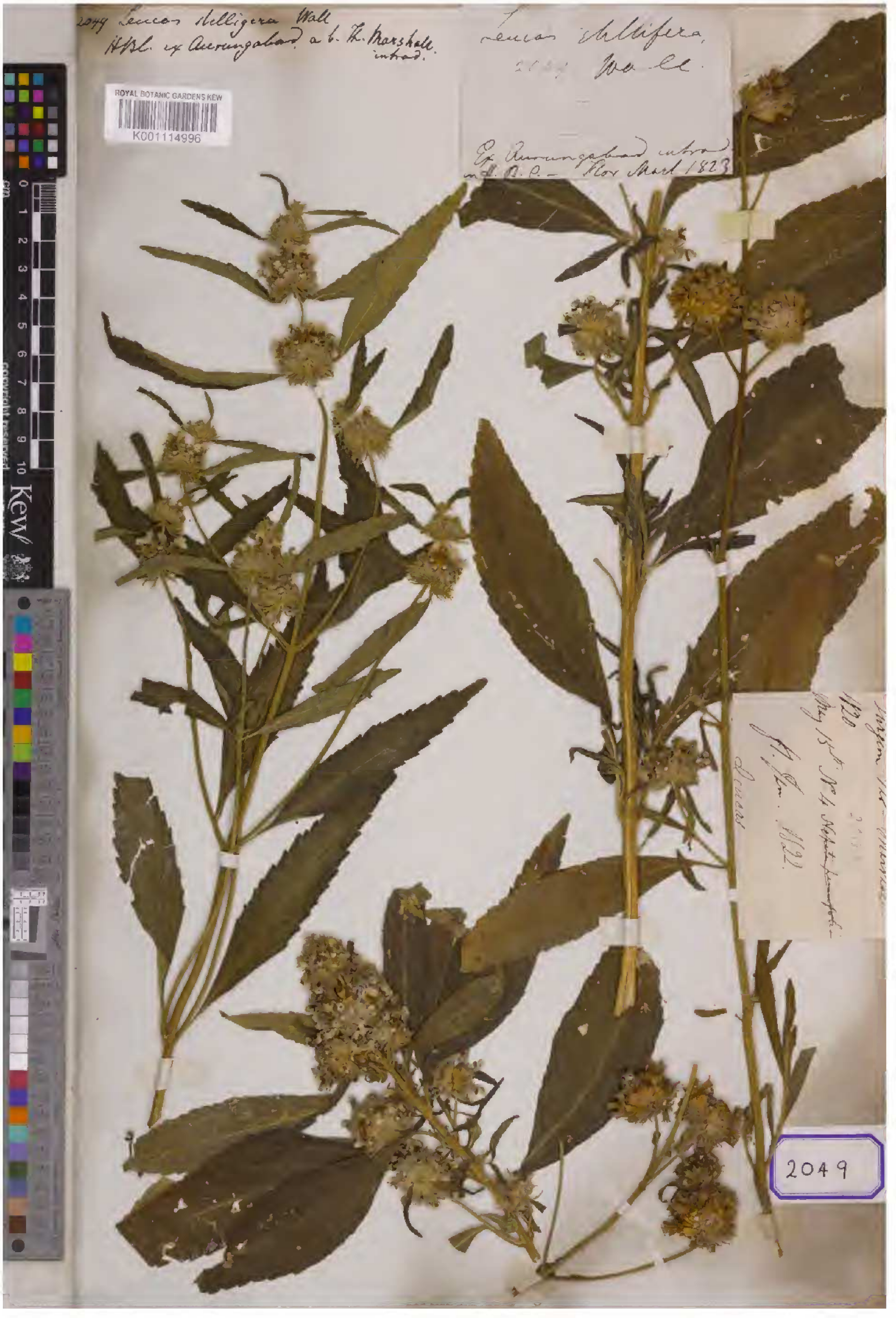

Fig. 16. Lectotype of *Leucas stelligera* (K001114996, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Fig. 17. Lectotype of *Leucas stricta* (K001114983, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Notes: Bentham (1830) described *Leucas stricta* on the basis of specimens of *Wallich cat. n. 2045*, but no specific herbarium sheet was designated as the holotype. Pertaining to this specification, three specimens of *Phlomis stricta*, Herb. Heyne, *Wallich cat. n. 2045* are traced (CAL, K929547 and K1114983). The date 1829 mentioned on the two sheets, CAL and K929547, is given by Wallich not by B. Heyne. Only the two specimens at K have been considered as suitable lectotype specimens for this name. The best preserved specimen, K1114983, is designated here as the lectotype as it agrees well with the protologue and also on the top of this specimen *Phlomis stricta* is written by B. Heyne as mentioned in the protologue.

18. ***Leucas suffruticosa*** Benth., *Labiatarum Genera et Species* 611 (1834)

Type citation: "Hab. in Indiae orientalis Peninsulae montibus Nielgherri dictis *Wight !* (*h. s. sp. comm. a cl. Wight et e Mus. Angl. Ind.*"

Lectotype (here designated): India, Peninsula Indiae Orientalis [Peninsular India], without date, *Wight 2157* (K929517!) **Fig. 18**

Residual syntypes: India, Peninsula Ind. orientalis [Peninsular India], without date, *Wight 2158* (E301310!–301313!); Peninsula Ind. orientalis, without date, *Wight 2158* (K929519!); Peninsula Indiae Orientalis, without date, *Wight 2157* (P738034!); Peninsula Ind. orientalis, without date, *Wight 2158* (P738035! and P738037!)

Distribution: India, endemic and rare (Andhra Pradesh, Karnataka and Tamil Nadu).

Notes: Bentham (1834) described *Leucas suffruticosa* based on the specimens from Peninsular India collected by Wight, but no type was indicated. Within the protologue, Bentham gave only the name of the collector and locality, but did not provide date, collection number or the name of herbarium where the specimen(s) were housed. Pertaining to this specification, nine specimens of Wight collected from Peninsular India were traced (E301310–301313, K929517, K929519, P738034, P738035 and P738037). Bentham's main type herbarium is K. Therefore, only the two specimens at K have been considered as suitable lectotype specimens for this name. The best one and better preserved, K929517, is designated here as the lectotype as it agrees well with the protologue.

19. ***Leucas vestita*** Benth. var. ***angustifolia*** Hook.f., *Flora of British India* 4: 687 (1885)

Type citation: "Sisparah, *Wight* ; Palghat hill range, *Beddome.*"

Lectotype (here designated): India, Kerala state, Sisparah [Sispara], without date, *Wight 32* (K929534!) **Fig. 19**

Distribution: India, endemic and rare (Kerala and Tamil Nadu)

Notes: J.D. Hooker (1885) described *Leucas vestita* var. *angustifolia* based on two gatherings from Sisparah (*Wight*) and Palghat hill range (*Beddome*) but no specific herbarium sheet was designated as the holotype. At present only one specimen (K929534) of Wight from Sisparah annotated by J.D. Hooker as 'L. vestita Bth var. angustifolia Hf' is extant now and is chosen here as the lectotype as it agrees well with the protologue.

20. ***Leucas vestita*** Benth. var. ***oblongifolia*** Hook.f., *Flora of British India* 4: 687 (1885)

Type citation: "Courtallum, *Wight.*"

Lectotype (here designated): India, Tamil Nadu state, Tirunelveli district, Courtallum, *anno* 1836, *Wight 730* (K929532!) **Fig. 20**

Residual syntype: India, Tamil Nadu state, Tirunelveli district, Courtallum, *anno* 1835, *Wight 611* (K929533!)

Distribution: India, endemic and rare (Tamil Nadu).

Notes: J.D. Hooker (1885) described *Leucas vestita* var. *oblongifolia* based on the gathering of Wight from Courtallum but no specific herbarium sheet was designated as the holotype. Two herbarium specimens with J.D. Hooker's annotation 'L. vestita Benth var. oblongifolia Hf' are extant at K and these should be considered as original material (K929532 and K929533). The best one, K929532, is designated here as the lectotype, as it agrees well with the protologue and also in having dissected flower parts pasted on the sheet.

Fig. 18. Lectotype of *Leucas suffruticosa* (K000929517, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Fig. 19. Lectotype of *Leucas vestita* var. *angustifolia* (K000929534, © the Board of Trustees of the Royal Botanic Gardens, Kew).

Fig. 20. Lectotype of *Leucas vestita* var. *oblongifolia* (K000929532, © the Board of Trustees of the Royal Botanic Gardens, Kew).

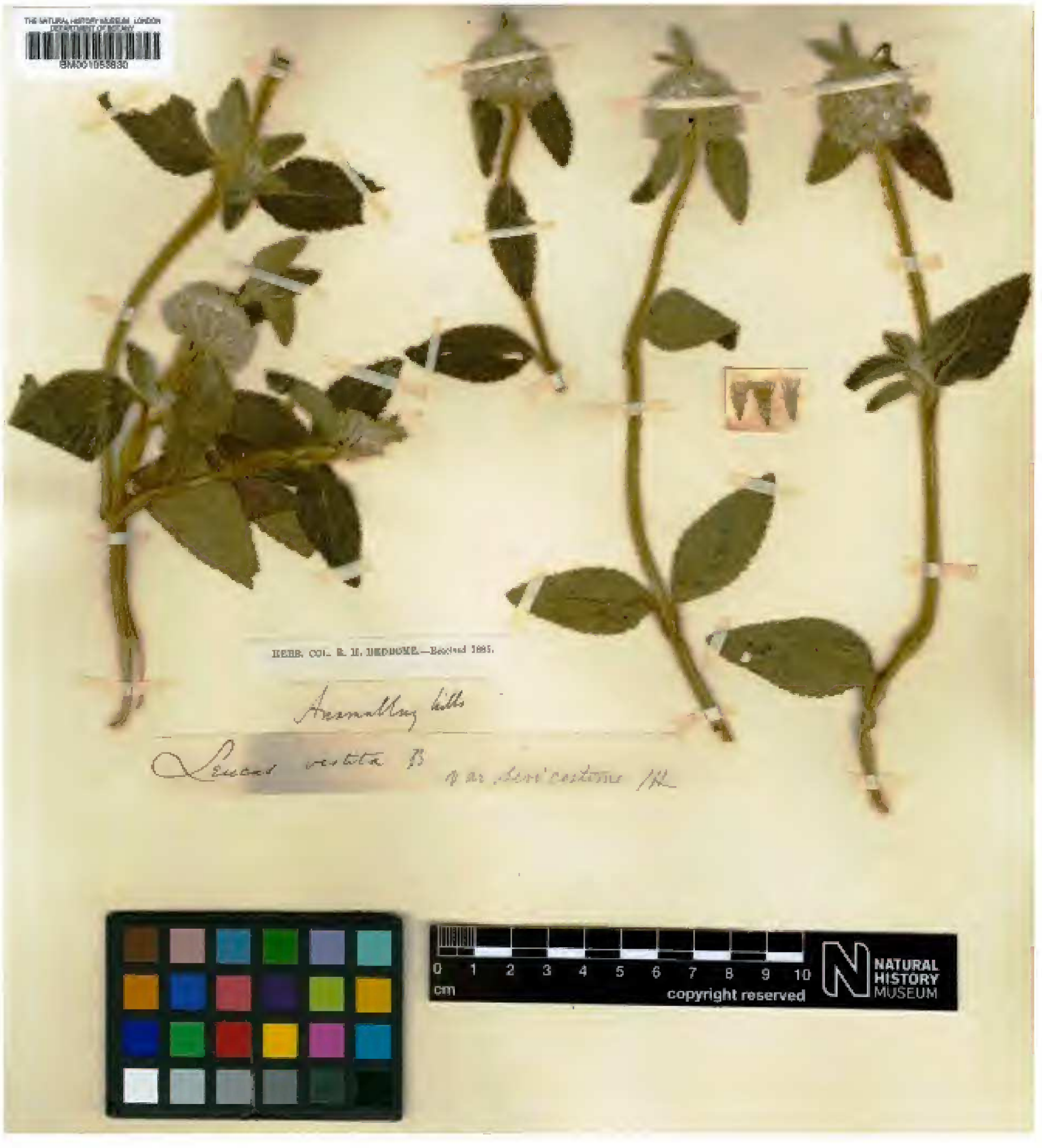

Fig. 21. Lectotype of *Leucas vestita* var. *sericostoma* (BM001053830, © British Museum of Natural History, London).

21. ***Leucas vestita*** Benth. var. ***sericostoma*** Hook.f., *Flora of British India* 4: 687 (1885)

Type citation: "Anamallay hills, *Beddome*."

Lectotype (here designated): India, Tamil Nadu state, Anamallay [Anaimalai] hills, without date, *R.H. Beddome s.n.* (BM1053830!); isolectotype: K929529, *p.p.*! **Fig. 21**

Distribution: India, endemic and rare (Tamil Nadu).

Notes: J.D. Hooker (1885) described *Leucas vestita* var. *sericostoma* based on the gathering of Beddome from Anamallay hills but no specific herbarium sheet was designated as the holotype. Two herbarium specimens with J.D. Hooker's annotation 'var. *sericostoma* Hf' are traced and these should be regarded as original material (BM1053830 and K929529). Of these, the best one and better preserved sheet, BM1053830, is designated here as the lectotype, as it agrees well with the protologue and also in having dissected flower parts pasted on the sheet. The K herbarium sheet is a mixed collection, the lower half plant specimen belong to Beddome from Anamallay hills, whereas the upper half is from *Herb. Wight*.

Fig. 22. Lectotype of *Leucas wightiana* (K000929566, © the Board of Trustees of the Royal Botanic Gardens, Kew).

22. ***Leucas wightiana*** Wall. *ex* Benth., *Plantae Asiaticae Rariores* 1: 60 (1830)

Type citation: 'Hab. . . . . Herb. Wight.'

Lectotype (here designated): India, *anno* 1829, Herb. Wight, *Wallich cat. n. 2520* (K929566!) **Fig. 22**

Residual syntypes: India, without date, Herb. Wight, *Wallich cat. n. 2520* (CAL!, E179485! and K1116340!); Peninsula Indiae Orientalis [Peninsular India], without date, *Wight 2161* (M186061!)

Distribution: India, endemic (Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, and Tamil Nadu).

Notes: In the protologue of *Leucas wightiana*, Bentham (1830) indicated only 'Hab. . . . . Herb. Wight' as type citation but no specific herbarium sheet was designated as the holotype. Pertaining to this specification, five specimens of Herb. Wight, four belonging to *Wallich cat. n. 2520* and one of *Wight 2161* were traced (CAL, E179485, K929566, K1116340 and M186061), which should be considered as original material. Since Bentham's main type herbarium is K, only the two K specimens are considered as suitable lectotypes specimens for this name. The best one and better preserved sheet, K929566, is designated here as the lectotype as it agrees well with the protologue and also in having dissected flower parts and drawing pasted on the sheet by J.S. Gamble while working on *Flora of Madras*.

Acknowledgments

The author is thankful to the late Prof. J.L. Reveal, Cornell University, Ithaca, New York for his valuable suggestions regarding the lectotypification and to Dr. P. Singh, Director, Botanical Survey of India (BSI), Kolkata for facilities. I am also grateful to Dr. Barry J Conn, Principle Research Scientist, National Herbarium of New South Wales (NSW) for valuable suggestions and to the Curators of BM, BSI, BLAT, CAL, E, K, M and P for information and images of type specimens.

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Manuscript received 07 September 2015, accepted 24 September 2015